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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,542	02/23/2006	Klaus Griesbach	KSK107A	7718

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EXAMINER	
COLEMAN, KEITH A	
ART UNIT	PAPER NUMBER
3747	

NOTIFICATION DATE	DELIVERY MODE
01/08/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/569,542	GRIESBACH ET AL.	
	Examiner	Art Unit	
	KEITH COLEMAN	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 and 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al. (US Patent No. 6,655,026) in view of Hayden, Sr. (US Patent No. 4,258,084).

5. With regards to claims 1, 7, 8 and 9, Iida et al. discloses a connecting rod and generally any inner surfaces of a bearing into which a piston pin and a crankpin fit are strengthened by shot-peening the surfaces (Col. 1, Lines 6-11). It is deemed that since Iida is concerned with the inner surfaces of bearings into which a piston pin would connect that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the inner surfaces of the piston head pinhole of Iida et al. with indentations as well to strengthen the surfaces. However, Iida et al. does not disclose the shot peening indentations as being circular. Hayden discloses surfaces (11) shot peened so as to create crater-shaped circular indentations (20) and to provide the movable surfaces with good lubricant retention (Col. 2, Lines 5-15) or said crater-shaped indentations configured to carry oil and to prevent the oil from flowing away during a change in contact (Col. 2, Lines 5-15) and the pin hole surfaces subjected to residual compressive stress through cold working during shot peening the pin hole surfaces with the blasting medium (Col. 2, Lines 6-13, Figures 1-2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention made to have made the shot peened indentations of Iida et al. circular so as to provide a piston head pinhole with a stronger inner pinhole surface with good lubricant retention.

Both patents are analogous art because they both disclose methods of improving surfaces of engine components.

With regards to the limitation of introducing indentations at room temperature (i.e. cold-working), because the purpose of shot-peening is to create residual stresses on a metal surface and is convenient to perform at room-temperature and Iida explicitly states, "The quenching depth according to the carburizing and quenching processing, that is, the depth to which the compressive residual stress is formed, varies according to the condition of the carburizing and quenching processing (temperature, carbon concentration, processing time, etc.)" (Col. 2, Lines 14-19), it would have be obvious to one having ordinary skill in the art at the time the invention was made to know that cold-hardening processes such as shot peening can be performed at room temperature.

With regards to claims 3 and 5, Hayden discloses wherein the indentations can be introduced into a surface by a blasting medium which has definite grain (Col. 2, Lines 15-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the shot peened indentations of Iida et al. to have a definite grain so as to provide a large number of depressions as taught by Hayden.

With regards to claim 4, both Iida et al. and Hayden disclose a blasting medium which is a shot-peening medium (Col. 2, Lines 14-27 from Iida et al., Abstract from Hayden). It should be noted that "peened from glass spheres" as cited in Hayden is interpreted as shot-peening.

With regards to claim 6, Hayden discloses shot penning the pin hole surfaces with the blasting medium at a velocity so that the blasting medium creates the indentations upon impact without penetrating the material of the pin hole surfaces (Col. 2, Lines 6-13, Figures 1-2).

Response to Arguments

Applicant's arguments filed 12/1/2008 have been fully considered but they are not persuasive.

Applicant's Arguments

Claims 1 and 3-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Iida et al. (U.S. Patent No. 4,655,026)in view of Hayden, St. (U.S. Patent No. 4,258,084). Although the rejection of the claims 1 and 8 is traversed, claims 1 and 8 have been amended to further distinguish from the cited prior art. Iida et al. discloses shot peening a connecting rod, and especially a production process for a connecting rod for an internal combustion engine. The surface of a connecting rod is completely different and cannot be compared with the surface of a piston pin hole. The connecting rod has an exposed exterior surface that is essentially convex and easy to access for shot peening. It is more difficult to shot peen a pin hole because tile pin hole has a concave surface and is arranged in the skirt. Therefore, it is not easily accessible for

shot peening. As a result, it would not have been obvious to one having ordinary skill in the art at the time the invention was made to look at the' shot peening of an easily accessible connecting rod to provide the invention of shot peening an interior concave piston pin hole that is not easily accessible.

Further, in the present invention, the surfaces of the piston pin holes are directly bombarded with a shot peening medium. In the cited prior art of lida et al., the surfaces are carburized and quenched forming a carburized layer (step A in claim 1 of lida et al.), followed by grinding the carburized layer (step B in claim 1 of lida et al.). After the steps of (A) and (B), then the surface is shot peened. In the present invention, the Surface of the pin hole is directly shot peened without the prior steps of carburization, quenching or grinding the surface.

The Hayden, Sr. disclosure (U.S. Patent No. 4,258,084) is related to shot peening cylinder sleeves or walls in an internal combustion engine. As stated in the disclosure of Hayden, Sr., at Col. 2, II. 24-29, and Col. 3, II. 6-15, a lubricating agent 15 is applied to the surface before peening. Hayden, St. states that the lubricant is embedded into the surface at the point of impact. The present invention does not coat the pin holes with a lubricant before peening. The shot peening is done directly to the surface of the pin holes.

In addition, claims 1 and 8 feature that the shot peening is introduced into the piston pin hole surfaces at room temperature. This feature is not disclosed in either lida et al. or in Hayden, Sr. In a prior Office Action, the Examiner stated that it would be

obvious to one having, ordinary skill in the art at the time the invention was made to know that cold hardening processes such as shot peening can be performed at room temperature since it is convenient to perform the process at room temperature, However, this is not the reason for performing the process at room temperature, and it appears that the Examiner is using his own personal knowledge for his rejection. Therefore an affidavit from the Examiner is requested under CFR 1.104(d) (2) to provide citations or reasonings for his personal knowledge. In actuality, it is not the convenience of room temperature that makes it important to process the shot peening at room temperature, but instead the advantage of working at room temperature is that residual compressive stress is induced in the surface which contributes to increased end strength therein. Iida et al, teaches in claim 1 the step of grinding to a depth at which compressive residual stress exhibits a maximum value. Therefore, Iida et al. teaches a different means to increase strength than the present invention.

As a result, independent claim 1 and claim 8 are believed to be allowable over the cited prior art. The associated dependent claims are also believed to be allowable.

Examiner's Response to Arguments

With regards to Applicant's first argument, as stated in the previous arguments (Page 3 of the Final Action sent on 1/14/2008), Iida et al. is clearly concerned with the inner surfaces of bearings (See Col. 1, Lines 6-11).

With regards to Applicant's second argument, Hayden clearly discloses directly shot-peening a surface (Col. 2, Lines 5-15).

With regards to Applicant's third argument and stated in the Final Action sent 1/14/2008, "To remedy the notion that Examiner used hindsight and personal conjecture, an additional document titled "Shot-Peening Overview", containing shot-peening industry standards and experiments done at room-temperature dating from January 18, 2001, has been provided. This document provides specific factual findings predicated on sound technical and scientific reasoning to support Examiner's conclusion of common knowledge of one of ordinary skill in the art. The germane pages are 22 (See Figure 26) and 34 (First Paragraph). It should be noted that on Page 34 on Lines 5-6, Champaigne explicitly states, "Peen forming is accomplished at room temperature." Thus, the request is denied.

Lastly, the specificity found in Applicant's remarks and specification does not match the claim language. Applicant is reminded to see MPEP 2111. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) The court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification into a claim,' to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." Thus, the claim is not limited to such interpretation and the rejection still holds.

As such, this action is made final.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH COLEMAN whose telephone number is (571)270-3516. The examiner can normally be reached on 5:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on (571)272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAC
/K. C./
Examiner, Art Unit 3747

/Stephen K. Cronin/
Supervisory Patent Examiner, Art Unit 3747